

IN THE CLAIMS

Claim 1 (Currently amended): A system to disconnect at least one drive wheel from a vehicle with an electric motor connected to a powertrain, comprising:

the powertrain having [[an]] said electric motor mechanically connected to an output shaft, the output shaft mechanically connected to at least one axle, the axle mechanically connected to at least one drive wheel;

the axle further comprising a means to mechanically disconnect the output shaft from at least one drive wheel;

a vehicle system controller ~~comprising (“VSC”)~~ receiving input from an inertia switch and electric motor ~~conditions and can activate the condition sensors, with said VSC activating said~~ means to mechanically disconnect the output shaft from the drive wheels in the event that the inertia switch is activated, with said VSC further comprising a subsystem to monitor whether a means to reset an activated inertia switch has been activated and which accordingly deactivates said means to mechanically disconnect the output shaft from the drive wheels. ~~predetermined vehicle conditions.~~

Claim 2 (Cancelled)

Claim 3 (Withdrawn): The system of claim 1 wherein the predetermined vehicle conditions comprise abnormal electric motor conditions.

Claim 4 (Withdrawn): The system of claim 1 wherein the VSC further comprises monitors for driver demand for four wheel drive, two wheel drive, and neutral tow and activates the means to mechanically disconnect the output shaft from at least one drive wheel to meet that demand.

Claim 5 (Cancelled)

Claim 6 (Withdrawn): The system of claim 3 wherein the electric motor conditions comprise motor over-current, motor over-torque, and motor over-temperature.

Claim 7 (Original): The system of claim 1 wherein the means to mechanically disconnect the output shaft from the drive wheels comprises a disconnect actuator and joint attached to an axle disconnect.

Claim 8 (Original): The system of claim 7 wherein the axle disconnect is electric powered.

Claim 9 (Original): The system of claim 7 wherein the axle disconnect is vacuum powered.

Claim 10 (Original): The system of claim 7 wherein the axle disconnect is a center disconnect.

Claim 11 (Original): The system of claim 7 wherein the axle disconnect is a wheel-end disconnect.

Claim 12 (Cancelled)

Claim 13 (Original): The system of claim 11 wherein the axle is a limited slip axle.

Claim 14 (Currently amended): A method for disconnecting at least one drive wheel from a vehicle with an electric motor connected to a powertrain, and having [[an]] said electric motor mechanically connected to an output shaft, the output shaft mechanically connected to at least one axle, the axle mechanically connected to at least one drive wheel, the steps comprising:

monitoring input from an inertia switch and electric motor conditions;

determining whether the inertia switch has been activated; predetermining vehicle conditions to disconnect the output shaft from the drive wheels; and
disconnecting the output shaft from at least one drive wheel in the event that the
inertia switch has been activated, when the predetermined vehicle conditions occur.

Claim 15 (Cancelled)

Claim 16 (Withdrawn): The method of claim 14 wherein the step of predetermining vehicle conditions to disconnect the output shaft from the drive wheels comprises the step of determining abnormal electric motor conditions exist.

Claim 17 (Original): The method of claim 14 wherein the step of disconnecting the output shaft from at least one drive wheel uses electric power.

Claim 18 (Original): The method of claim 14 wherein the step of disconnecting the output shaft from at least one drive wheel uses vacuum power.